

## Abstract

A satellite-based communications system operating at high data rates includes a plurality of satellites each having uplink and downlink antennas for transmitting and receiving a plurality of signals utilizing a plurality of spot beams to and from a plurality of coverage areas at a predetermined range of frequencies. The system can include, or be combined with, other systems to enable increased capacity over high population areas and ubiquitous coverage over lower population areas. A portable antenna assembly can be coupled to a user's portable or mobile electronic device for coupling the electronic device directly to a satellite. A routing switch provides routing and switching on-board the satellite and routes signals according to their desired destination.